REMARKS

Claims 1-42 were considered in the Office Action dated September 18, 2006. The Office Action withdraws previous rejections but presents new rejections in light of Staiger, Phillip, "Tutorial – Amapi 4.1.5 Material Editor," Revised January 1, 2001, TGS, Inc., http://www.tgs.com, accessed on 9/8/2006 via http://www.thebest3d.com/amapi/tutorials/materialeditor/) (**Staiger**).

Claims 1-11, 30-40 and 42 stand as rejected under 35 U.S.C. 102(b) as being allegedly anticipated by **Staiger**.

Claims 12-16, 18, and 20-22 stand as rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over **Staiger** in view of U.S. Patent No. 5,461,709 (**Brown**).

Claims 17 and 19 stand as rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over **Staiger** in view of **Brown** and further in view of U.S. Patent No. 6,822,635 B2 (**Shahoian**).

Claims 23-28 and 41 stand as rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over **Staiger** in view of U.S. Patent No. 5,371,778 (**Yanof**).

Claim 29 stands as rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over **Staiger** in view of **Yanof** and further in view of **Brown**.

Without acquiescing to any of the arguments or rejections of the Office Action, the Applicant amends independent claims 1, 10, 23, and 30, as reflected in the Listing of Claims. The amendments are supported in the specification as originally filed, for example, in the Abstract; at page 3, lines 10-17; and in Figures 1A, 1B, 17, 18A, 18B, 19A, 19B, 21A-C, 23A-C, 24A, 24B, and 26A-C. No new matter is added.

Applicant also adds new dependent claims 43-48, supported in the specification as originally filed, for example, in the portions indicated above as well as on page 4, lines 12-14 (claims 43, 44); on page 2, lines 6-9 (claims 45, 46); and on page 12, lines 2-6 (claims 47, 48). No new matter is added.

Upon entry of this paper, claims 1-48 will be pending.

The fact that the user-defined region is *arbitrarily-shaped* clearly distinguishes the invention from the cited art.

Each of the independent claims has been amended to indicate that the user-defined region recited therein is arbitrarily-shaped.

Prior texture mapping methods use geometric projection techniques, which are unacceptable for wrapping texture onto an arbitrarily-shaped, user-defined portion of a 3-D surface. This is explained in the specification, for example, at page 2, lines 3-9, reproduced below:

[0005] Prior texture mapping methods use projection techniques to map a two-dimensional texture onto the surface of a three-dimensional model. For example, a spherical projection technique may be used to map a texture onto the surface of a spherical object. However, spherical projection introduces unacceptable distortion of the mapped texture if the object is non-spherical or has non-spherical portions. Similarly, planar projection and cylindrical projection methods do not work well for mapping texture onto three-dimensional models having non-planar or non-cylindrical portions.

Geometric projection techniques require the 3-D surface onto which a texture is being mapped to have a standard, easily-characterized geometric form, for example, a plane, a sphere, or a cylinder. Because the invention of the present application does not rely on geometric projection, a texture can be mapped onto a virtual object having a shape that is atypical of standard, easily-characterized geometric forms, as explained in the specification, for example, at page 4, lines 10-14, reproduced below:

> Since the energy minimization scheme does not rely on geometric projection, a texture can be mapped onto a virtual object having a shape that is atypical of standard, easily-characterized geometric forms. Furthermore, methods of the invention do not require mapping texture onto an entire virtual object surface. Texture can be mapped within an arbitrarily-shaped, user-selected region of an object surface.

Examples of arbitrarily-shaped, user-defined regions onto which a texture is mapped are shown in the original specification in Figures 1A, 1B, 17, 18A, 18B, 19A, 19B, 21A-C, 23A-C, 24A, 24B, and 26A-C.

For example, Figure 19A is a screenshot showing a virtual object and haptic/graphic user interface element used in texture wrapping within an arbitrarily-shaped region bound by curve loop **1806**, where the texture wraps over a sharp curvature feature within the user-defined region.

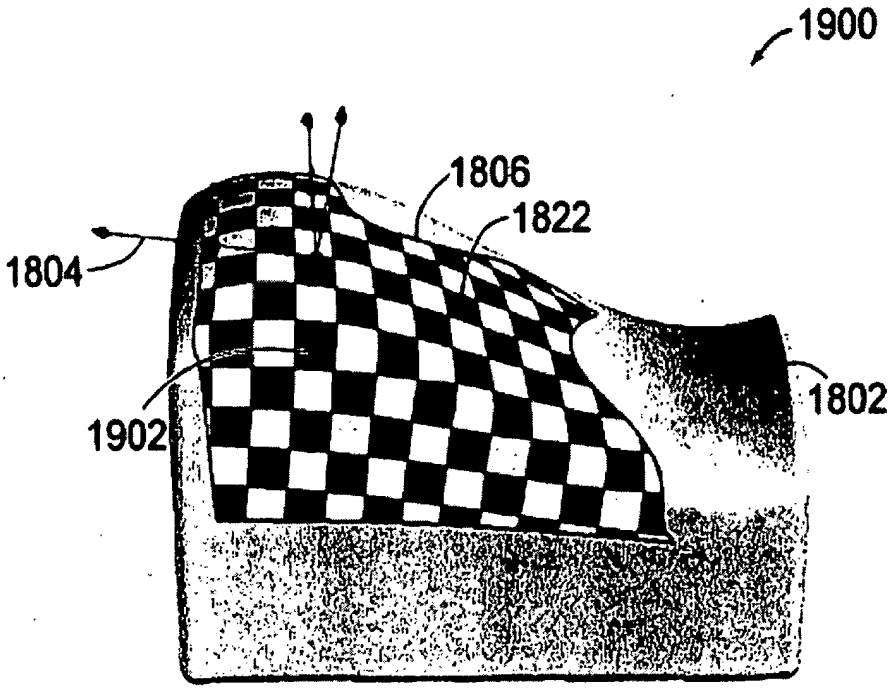


FIG. 19A

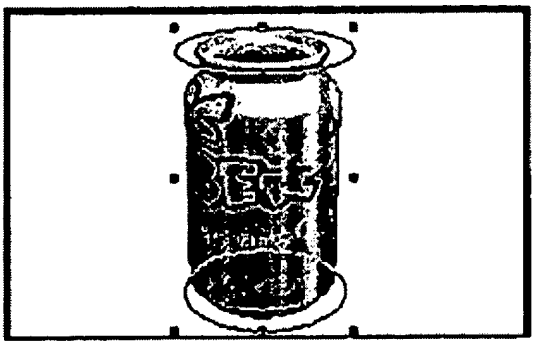
Standard geometric projection techniques could not be used to perform the texture wrapping with the realism shown in Figure 19A. Geometric projection would introduce unacceptable distortion, particularly in the vicinity of the sharp curvature feature of the 3-D surface.

Independent claims 1, 10, 23, and 30 (and their dependent claims) distinguish over **Staiger**

Staiger does not teach or suggest texture mapping onto an arbitrarily-shaped, user-defined region of a surface of a 3-D virtual object, as recited in claims 1 and 10; nor does **Staiger** teach or suggest adjusting mapped texture within an arbitrarily-shaped, user-defined region of a surface of a 3-D virtual object, as recited in claims 23 and 30.

Staiger applies a cylindrical geometric projection technique for wrapping a label onto the entire surface of an easily-characterized geometric form (a cylinder). This would not work for mapping texture onto an arbitrarily-shaped, user-defined region of a 3-D object surface, as shown in Figure 19A of the present application.

At page 12, **Staiger** presents "hot-spots" that appear in a "preview area," which allow a user "to re-orient (rotate), scale and translate (move) the mapped texture." A screenshot of the preview area in **Staiger** is reproduced below:



The label is wrapped around the entire surface of the can. There is no "user-defined region of a surface of a three-dimensional object" in **Staiger**, much less an "arbitrarily-shaped, user-defined region," as recited in each of claims 1, 10, 23, and 30. Therefore, each of the independent claims 1, 10, 23, and 30 are patentably distinguished from **Staiger**.

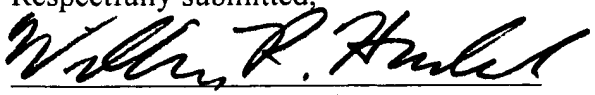
Furthermore, none of the other cited art (**Brown**, **Shahoian**, and **Yanof**), individually or in combination, teaches or suggests texture mapping onto an arbitrarily-shaped, user-defined region of a surface of a 3-D virtual object, as recited in claims 1 and 10, or adjusting mapped texture within an arbitrarily-shaped, user-defined region of a surface of a 3-D virtual object, as recited in claims 23 and 30.

Thus, claims 1, 10, 23, and 30 are patentable in light of all the cited art, at least for the reasons presented here, and Applicant respectfully requests reconsideration and withdrawal of the rejections of these claims. Dependent claims 2-9, 11-22, 24-29, and 31-48 depend directly or indirectly from one of these independent claims and are therefore also patentable in light of all the cited art, at least on this basis. Applicant respectfully requests reconsideration and withdrawal of the rejections of these claims as well.

CONCLUSION

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of all rejections, and allowance of claims 1-48 in due course. The Examiner is hereby cordially invited to contact Applicant's undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,



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William R. Haulbrook, Ph.D.
Attorney for Applicant
Goodwin Procter LLP
Exchange Place
Boston, Massachusetts 02109
Customer No. 051414

Tel. No.: (617) 570-1013
Fax No.: (617) 523-1231